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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TAYLOR II, JAMES W

ART UNIT	PAPER NUMBER
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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,375	Applicant(s) MACHHERNDL ET AL.	
	Examiner James W. Taylor II	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-56 is/are pending in the application.
- 4a) Of the above claim(s) 47-56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 29-46 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/16/2008</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.
2. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.
3. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted:
 - Group I, claim(s) 29-46, drawn to a composition.
 - Group II, claim(s) 47-54, drawn to a process of making the composition of Group I.
 - Group III, claim(s) 55-56, drawn to a cured product made from the composition of Group I.
4. The technical features which are common to claims 29, 47, and 55 are (i) a substantially solvent-free at least partially etherified modified aminoplast resin, wherein the aminoplast resin system produced is a melamine-formaldehyde, melamine/urea-formaldehyde, or a formaldehyde resin system, and (ii) a compound which contains at least one of phosphorus, nitrogen, or boron in chemically bonded form and is present in encapsulated form and enclosed by a capsule wall material in the aminoplast resin matrix. These features are all taught by Kobayashi *et alli* (US 4,985,307). Specifically, its flame retardant material can comprise a melamine-formaldehyde resin, wherein said

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resin is at least partially etherified by C₁-C₃ alcohols (c. 3, ll. 28-47) and wherein said resin is made in the aqueous phase (c. 3, l. 28), and thus it is inherently "substantially solvent-free." The composition further comprises microencapsulated ammonium polyphosphate (c. 4, l. 34 to c. 5, l. 27). Therefore, since the common limitations of 29, 47, and 55 fail to define a contribution over Kobayashi, they fail to constitute a special technical feature, and hence there is a lack of unity between the cited claims, established *a posteriori*.

5. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

6. Specifically, in the present case burdens (c) and (d) apply.

7. **Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined** even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention.**

8. The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

9. If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

10. Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable

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over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

11. During a telephone conversation with Richard L. Byrne (reg. no. 28,498) on June 10, 2009 a provisional election was made without traverse to prosecute the invention of Group I, claims 29-46. Affirmation of this election must be made by applicant in replying to this Office action. Claims 47-56 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Specification

12. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. More specifically, the examiner must assert the title is not sufficiently precise because it does not reference the encapsulated flame retardant component, which is critical to the practice of the invention.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 37, 40, 42, and 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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15. Regarding claim 37 necessitates that "the capsule wall material comprises a modified aminoplast resin which has surface properties similar to the modified aminoplast resin forming the modified aminoplast resin matrix." It is unclear at when a capsule wall material would or would not meet this limitation.

16. Regarding claims 40, 42-43, and 46, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

17. Regarding claim 45, there is insufficient antecedent basis for the following limitation in the claim: "the transesterification agents."

Claim Rejections - 35 USC § 102

18. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

19. Claims 29-43 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kobayashi *et alli* (US 4,985,307).

20. Kobayashi teaches a flame retardant for wood (ti.). Specifically, the flame retardant material can comprise an aminoplast (*i.e.*, melamine-formaldehyde resin) wherein said aminoplast is at least partially etherified by C₁-C₃ alcohols (c. 3, ll. 28-47 ff). Said aminoplast is made in the aqueous phase (c. 3, l. 28), and thus it is inherently

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"substantially solvent-free." The composition further comprises microencapsulated ammonium polyphosphate (c. 4, l. 34 to c. 5, l. 27).

21. Regarding claim 30, as noted above, said resin is at least partially etherified by C₁-C₃ alcohols.

22. Regarding claims 31-32, the following components can be present: dispersant (c. 6, l. 15), C₁-C₃ alcohols (c. 6, l. 46), antifoaming agents (c. 6, l. 57), and penetrants (c. 6, l. 63). It is noted that although claim 32 narrows the scope of claim 31's transesterification agents, the claim *does not* necessitate the transesterification agent as a mandatory component used in claim 31. As such, claim 32 is properly met by any of a modifier, filler, reinforcing fiber, further polymer, stabilizer, UV absorber, or auxiliary, which are present as noted above.

23. Regarding claim 33, the microencapsulated material is ammonium polyphosphate (c. 4, l. 34).

24. Regarding claim 34, ammonium polyphosphates would inherently have a proton liberating effect because of the acidic- and/or Zwitterionic-nature of polyphosphates.

25. Regarding claim 36, the capsule wall can be either a methylolmelamine resin (i.e., aminoplast; c. 4, ll. 56-62) or epoxy resin (c. 4, ll. 63-66).

26. Regarding claim 37, in at least the case of the methylolmelamine resin (i.e., aminoplast; see above) capsule wall, the surface properties will be similar.

27. Regarding claim 38, Kobayashi states an exemplary method for mixing the essential components of the invention (e.g., the encapsulated ammonium phosphate) (c. 5, l. 28 to c. 6, l. 9). Further, dispersants can be utilized (c. 6, l. 15), to stabilize the

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ammonium polyphosphates (c. 6, ll. 16-19) and the components of the composition—including aqueous aminoplast coming via a urea resin and a microencapsulated ammonium polyphosphate, exemplified by Exolit® 462—are “uniformly admix[ed]” in at least one example (ex. 7, c. 7, ll. 20 ff). In light of the above factors, the examiner takes the position that Kobayashi’s ammonium phosphate is to at least some degree “homogeneously mixed” into Kobayashi’s aminoplast resin.

28. Regarding claims 39-41, the examiner notes that the applicant uses Exolit® 462 as its encapsulated ammonium phosphate (p. 21, ll. 2 and 25). Kobayashi teaches that Exolit® 462 to can be used as well (c. 4, ll. 59). Because the prior art an the present invention are using the same particles, viz. Exolit® 462, then the particle size and shape used in the present invention must necessarily be present for the prior art.

29. In light of the above, it is clear that Kobayashi anticipates the discussed claims.

Claim Rejections - 35 USC § 102/103

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

31. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

32. The U.S. Supreme Court supplied seven rationales in *KSR International v. Teleflex Inc.* (550 USPQ2d 1385) that, by following the factual inquiries set forth in *Graham v. John Deere Co.* (383 U.S. 1, 148 USPQ 459 (1966)), establish a *prima facie* case of obviousness. The rationales are:

- (a) Combining prior art elements according to known methods to yield predictable results;
- (b) Simple substitution of one known element for another to obtain predictable results;
- (c) Use of known technique to improve similar devices (, methods, or products) in the same way;
- (d) Applying a known technique to a known device (, method, or product) ready for improvement to yield predictable results;
- (e) "Obvious to try" – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- (f) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;
- (g) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

The examiner notes that the above rationales are merely exemplary. For more information, see MPEP §2141.

33. Claims 44-46 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kobayashi *et alli* (US 4,985,307).

34. Discussion related to Kobayashi found in paragraphs 4 and 20-29 above is hereby incorporated by reference.

35. It is noted that "wherein the at least one compound present in encapsulated form is added to the modified aminoplast resins as a powder or as suspension or both"

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is drafted in product-by-process format. Attention is drawn to MPEP 2113 which states, in part:

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.’ *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)”

and

“Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product.’ *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983)”

Given that, it is the examiner's position that since the combination of cited references discloses a composition that renders anticipated the microcapsules in the present claims, in light of the above discussion, the claim(s) stand(s) properly rejected notwithstanding its process limitations. Further, the burden is shifted to the applicant to provide evidence establishing an unobvious difference between the composition in the present claims and by the cited reference(s).

36. In light of the above, it is clear that Kobayashi anticipates the present claim.

37. Alternatively, the presently claimed composition would obviously have been indistinguishable from a composition made by the product by process.

38. Regarding claim 46, the solids content of the mixture is preferably from 20 to 80% (c. 5, 40-42). Further, the courts have stated that a chemical composition and its properties (*viz.*, viscosity) are inseparable. Therefore, if the prior art teaches the

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identical or substantially identical chemical structure and/or composition, the physical properties Applicant discloses and/or claims are necessarily present. See *In re Spada*, 911 F.2d 705, 15 USPQ2d 1655, (Fed. Cir. 1990). "Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established." *In re Best*, 562 F.2d 1252, 195 USPQ 430, (CCPA 1977). Further, if it is the applicant's position that this would not be the case, factual evidence would need to be provided to support the applicant's position.

Claim Rejections - 35 USC § 103

39. Claims 35, 39-40, and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi *et alli* (US 4,985,307).

40. Discussion related to Kobayashi found in paragraphs 4, 20-29, and 35-38 above is hereby incorporated by reference.

41. Regarding claim 35, the reference does not teach mixing possible encapsulated materials in the microencapsulated ammonium polyphosphates. Nonetheless, it is well settled that it is *prima facie* obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. See *In re Lindner* 457 F,2d 506,509, 173 USPQ 356, 359 (CCPA 1972). Also, case law holds that "it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been

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individually taught in the prior art.” *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

42. Regarding claims 39-40 and 43, as noted above, the ammonium polyphosphate particle prior to encapsulation has a particle size of 25 microns. The reference does not disclose what the capsule wall thickness is. However, thicker walls are more rigid and would be expected to take longer to degrade or more physical force to rupture to expose the inner contents, and *vice versa*. As such, the thickness of the capsule wall is a result effective variable. Optimization of result effective variables through routine experimentation is not a patentable distinction. See *In re Beosch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and MPEP 2144.05 (II) (B). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the thickness of the capsule wall to obtain a desired stability. This optimization would directly control the particle thickness and weight percent of the ammonium polyphosphates relative to the microencapsulated ammonium polyphosphates, and thus these value is open to optimization as well for the same reasons.

43. Regarding claim 42, the composition comprises 100 parts of 3-(dialkylphosphono)propionamides, preferably 150 to 250 parts by weight of aqueous aminoplasts, and 5 to 500 parts by weight of microencapsulated ammonium polyphosphates (c. 5, ll. 30-37), and thus one of ordinary skill in the art would calculate that the weight percent of microencapsulated ammonium phosphates to the entire composition is 1.4 weight percent (*i.e.*, 5 parts microencapsulated ammonium polyphosphates per 355 parts total composition) to 66.7 weight percent (500 parts

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microencapsulated ammonium polyphosphates per 750 parts total composition). Thus, there is an inherent overlap in values. The claimed range would have been obvious to one having ordinary skill in the art at the time the invention was made, since it has been held that claiming an overlapping portion of the range taught in the prior is a *prima facie* case of obviousness. See *In re Malagari*, 182 USPQ 549 and MPEP 2144.05 (I).

Conclusion

44. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James W. Taylor II whose telephone number is (571) 270-5457. The examiner can normally be reached on Monday to Friday, 8:00 am to 5:00 pm.

45. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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46. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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